

What is claimed is:

1. An optical assembly having a top and bottom orientation and comprising:
a platform defining a V-groove with walls of a certain pitch;
a first optical component having a reference surface and two sides, each side being beveled
5 at said certain pitch outwardly from said reference surface, said first optical
component having a first optical axis, said first optical component being disposed in
said V-groove such that said reference surface faces downward and said sides are
in parallel contact with said walls of said V-groove; and
a second optical component having an outer periphery with at least two contact points and
10 a second optical axis, said second optical component being disposed in said V-
groove such that said contact points contact said walls of said V-groove and said
second optical axis is coaxial with said first optical axis.
2. The optical assembly of claim 1, wherein said first optical component comprises a substrate
15 having said reference surface and said side walls, and at least one optical element secured to said
substrate and defining said first optical axis.
3. The optical assembly of claim 1, wherein said optical element is one of an active device, a
passive device, or a switching device.
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4. The optical assembly of claim 3, wherein said optical element is a semiconductor.
5. The optical assembly of claim 2, wherein said first optical component comprises a plurality
of optical elements secured to said substrate.
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6. The optical assembly of claim 5, wherein said optical elements comprise a laser diode and a
monitor diode optically connected to said laser diode.

7. The optical assembly of claim 1, wherein said laser diode and monitor diode are optically connector via a waveguide in said substrate.

8. The optical assembly of claim 1, wherein said substrate comprises the same material as said platform.

9. The optical assembly of claim 8, wherein said same material is silicon

10. The optical assembly of claim 9, wherein said certain pitch is 57.4°

11. The optical assembly of claim 1, wherein said second optical component is a ferrule containing a fiber.

12. The optical assembly of claim 1, wherein said second optical component comprises a substrate having a reference surface and beveled sides extending outwardly from said reference surface at said certain pitch, said two contact points being located on said beveled sides.

13. The optical assembly of claim 1, wherein said first and second optical axis are below the top surface of said platform.

14. The optical assembly of claim 1, wherein the distance across said V-groove at said top surface is greater than the distance across said second optical component.

15. The optical assembly of claim 1, wherein each side of said first component is a portion of a V-groove.

16. A method of preparing a first optical component for incorporation into an optical subassembly, said method comprising:

- (a) defining the location of at least two parallel V-grooves in a wafer to define at least one center portion between two V-grooves and a side portion on either side of said center portion;
- 5 (b) defining a fiducial location for mounting an optical element on said center portion between said parallel V-grooves, said fiducial being a certain distance relative to said parallel V-grooves;
- (c) etching said V-grooves;
- (d) creating a fiducial at said fiducial location;
- (e) securing an optical element to said center portion relative to said fiducial; and
- 10 (f) separating said side portions from said center portion.
17. The method of claim 16, wherein steps (a) and (b) are performed in a single photolithography step
- 15 18. The method of claim 16, wherein step (c) is performed by wet etching.
19. The method of claim 16, wherein said step (f) is performed after steps (a), (b), (c) and (d).
20. The method of claim 16, wherein in step (a) more the two parallel lines are defined such that said center portion is a side portion relative to at least one of its side portions.
- 20 21. The method of claim 16, wherein said fiducial is a certain pattern of first solder pads on said center portion and step (d) comprises depositing solder material in said pattern.
- 25 22. The method of claim 21, wherein said optical element comprises second solder pads arranged in said certain pattern and step (e) comprises passively placing said optical element over said first solder pads and then reflowing the solder material of said first and second solder pads such that the surface tension of said solder material aligns said first solder pads over said second solder pads and thereby aligns said optical element on said center portion.